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GILES S. PORTER, M.D., Director

Weekly Bulletin

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Vol. X, No. 6 March 14, 1931 GUY P. JONES EDITOR

"Jake Paralysis" in California

The appearance of a large number of cases of so-called "Jamacia ginger paralysis" in the southern part of the State, at least two of which have proved fatal, has focused the attention of public health officials upon the problems that are associated with the removal of the offending product from the public markets. As a matter of fact, ginger is in no manner to blame for the difficulty. The trouble lies in the use of a chemical adulterant in certain brands of Jamaica ginger. The problem here is the same as that encountered by public health authorities of eastern states last winter and spring.

The California Department of Public Health, the health departments of both Los Angeles City and Los Angeles County, as well as federal authorities are engaged in making investigations of the problem as it exists in California. So far, three brands of the product which contain the adulterant, tri-ortho cresyl phosphate, have been found and large quantities of the extract have been removed from public sale. Inspectors are taking samples of suspected brands of the extract, which are sent to official laboratories for examination.

It must be borne in mind that ginger is not under suspicion. Pure ginger is a valuable condiment. The Surgeon General of the United States Public Health, Hugh S. Cumming, said recently,

> "Ginger itself is one of the best known and highly praised condiments. It is wholesome and tonic in its effect when properly used—in foods and beverages. It has been so used from Biblical times and there is no reason to question its purity and safety when it is consumed in the food products of reputable manufacturers.
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> The warning against the drinking of Jamaica ginger extract has to do entirely with the drug product. The cases of paralysis which have been reported have been found, in every instance, to have been caused by the improper and illicit use of this drug product as a substitute for alcoholic liquor, and because of the fact that some unscrupulous manufacturers have marketed a preparation in which a poisonous adulterant had been used in place of real ginger."

The investigation into "ginger paralysis" by the United States Public Health Service, last winter, brought out some of the important features in connection with this form of poisoning. The service bulletin on this subject says:

> This paralysis, which has afflicted thousands of victims, is not caused by ginger at all, but by a compound known to chemists as tri-ortho cresyl prosphate. This chemical is the main constituent of technical tricresyl phosphate, which is widely used in trade circles, especially in the manufacture of varnishes, shellacs, and similar preparations. Being cheap and readily obtained in any quantities, it appears to have been used by irresponsible makers of so-called ginger extract to replace the ginger. There seems to be no question that the adulterated paralytic ginger extract contained tri-ortho cresyl phosphate in an approximate concentration of about two per cent.
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> The United States Public Health Service has been working on the public health aspects of "Jake paralysis" since the wide appearance of this condition in certain sections of the country last winter and spring. In attacking the problem, it soon became evident to investigators that they were dealing with a new form of paralysis and one in which many possibilities were involved. As the investigations proceeded, it became evident that some form of phenol was the causative agent. Soon attention was centered on technical tricresyl phosphate. Chemists of the Prohibition Bureau had found similar substances in suspected extracts. As a number of different chemicals enter into the manufacture of this commercial product, it became necessary to separate them and find out what effect each might have if used in a beverage. This has been done and it has

been found that tri-ortho cresyl phosphate, either itself or in combination with other chemicals of harmless nature, when given to various kinds of animals will produce exactly the same kind of paralysis as that caused by drinking of "Jake." The Public Health Service has no record of a single case of paralysis caused by ginger preparations manufactured by reputable pharmaceutical concerns. Tri-ortho cresyl phosphate is, therefore, definitely established as the specific cause of the cases of so-called "ginger paralysis."

Studies conducted on laboratory animals show conclusively that a paralysis of the extremities can be produced uniformly in monkeys and other animals by the injection under the skin or by oral administration of the chemically pure as well as the technical tri-ortho cresyl phosphate. The failure to produce any symptoms, whatever, in monkeys with enormous doses of this poison given by mouth indicates that it is practically not absorbed from the intestinal canal in that species.

The precise reason for including this remarkable substance as one of the ingredients of a substandard fluid extract of ginger made and sold for beverage purposes will probably never be known, unless a confession is wrung from the guilty ones. It seems entirely reasonable, however, to suppose that it was included on account of its physical or other properties which make it difficult to distinguish from the normal ginger constituents. Only a chemist of considerable ability could have thought of this; and had there been anything known about the pharmacologic action of this substance and the possible dire consequences, it is probable that it would never have happened. From this the question naturally arises as to whether there are not many other organic compounds of great medicinal interest, perhaps some with great possibilities for the treatment of disease, awaiting the attention of investigators.

A TRIUMPH IN DIPHTHERIA CONTROL

The record of New York City in the control of diphtheria in 1930 marks the peak of performance in the control of this disease. The following extract is reprinted from the Weekly Bulletin of the City of New York Department of Health for February 7th.

During the year 1930 there were 3794 cases of diphtheria reported to the Department of Health, of which 2882 occurred in children under 10 years of age, 350 in children 10–15, and 562 in persons 15 years and over. Investigation of the 3794 cases showed that 3530 children had never received injections of toxin-antitoxin, 75 children had received such injections less than six months previously, and 189 had received the injections more than six months before the illness. It has never been maintained that a course of three injections of toxin-antitoxin will completely immunize 100 per cent of the children so treated. Park's studies indicate that approximately 80 per cent will be protected by one course of treatment and that the great majority of the 20 per cent left unprotected can be immunized with a second course of toxin-antitoxin injections. Under the circumstances, the above showing is excellent.

Still more striking is the showing of toxin-antitoxin immunization in the fatal cases of diphtheria. Our records show 198 deaths from diphtheria in the city during 1920. Only four of the patients had previously received toxin-antitoxin, and in two of these four the immunizing injections had been given only within the month in which the disease occurred and so could not be effective.

A tabulation of the 198 fatal cases shows that 162 of the patients were treated with antitoxin, but here again a detailed study of the individual cases brings out some interesting facts. It must be remembered that, valuable as antitoxin is in the treatment of diphtheria, it is not an infallible remedy. The results depend on the promptness with which the antitoxin is administered and on the size of the dose. In severe cases the method of administration is also a factor. These well established facts are well brought out by our study of the 198 fatal cases in 1930. The antitoxin history of these cases was as follows:

Antitoxin before the third day of disease	58
Antitoxin on third or later days	104
Received no antitoxin	18
Antitoxin data unobtainable	18

In New York State, exclusive of New York City, similar results have been achieved. The number of diphtheria deaths in New York State decreased from 337 in 1925 to 144 in 1930, and the number of cases decreased from 4370 to 1594. The diphtheria death rate for the state has decreased from an average of 10.1 per 100,000 population for the period 1921–1925 to 3.8 for the years 1926–1930, during which period approximately three-fourths of a million children were immunized against diphtheria with toxin and antitoxin. Of this number, more than 185,000 were under 5 years of age.

SEWAGE DISPOSAL AT THE SUMMER HOME

Each year, more city people drift to the country for the summer season. Many of them have purchased or built summer homes and there is an increased demand for information relative to methods of sewage disposal at such places. A bulletin entitled, "Rural Sanitation," prepared by C. G. Gillespie, Chief of the Bureau of Sanitary Engineering, supplies practical information upon this subject. Mr. Gillespie states in the introduction to this bulletin,

> The demands of those living in the country, or even in their vacation places, for the same full line of plumbing as enjoyed in the city has created the problem of individual disposal of the resulting sewage. By sewage is meant not only the sludge but the watery effluent. There has thus grown up a rather specialized business of installing "farm" septic tanks combined with subsoil disposal.
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> Every subsoil system needs to be designed with two objectives, first to develop enough filtration above the ground water plane to prevent its pollution in the region of nearby wells, springs and streams; second to confine the effluent in a porous, well underdrained soil such that the water will not outcrop or ooze out upon the ground where children and pets can reach it. These considerations call for careful investigation and planning.
>
> It pays to get the work done by experienced, reliable men who have made a study of the subject. No hard and fast figures can be given for all parts of the layout. These notes are intended rather to instruct in the general principles one must use. For that reason they are not as compact as some might wish.
>
> One works blindly if he does not take into account the porosity and thickness of soil and subsoil lawers, the depth to water table especially in winter, deductions on its possible current and direction, and relation of his proposed disposal to nearby wells.

Makeup of County Sewage Disposal for Waterflushed Waste.

For quick glance, the main features are:

(a) *A root-tight sewer* from the house to the septic tank.

(b) *A septic tank* to extract the sludge and to deliver a water clear enough to be absorbed in the soil. That is its only purpose. The effluent is potentially dangerous.

(c) An *underground or subsoil lashing and absorbing system for the sewage liquor.* This is the real important part of the layout.

Under such favorable circumstances as small family or vacation use, combined with a deep, loose soil and a ground water table 12 or 15 feet down, one may get along with a cesspool. Even a cesspool, however, absorbs sewage better if a septic tank is used ahead of it.

But under most conditions of soil, subsoil and ground water, the subsoil system is essentially a trench filter, of a length 20 to 100 feet per person, excavated to a *flat grade* in the deepest and loosest soil. In the bottom of the trench is a deep filter bed of rock or gravel with good pore space. On this bed lies an open joint tile for sewage distribution.

Where still tighter soils or impervious formations prevail beneath the trench, it is well to incorporate a cesspool beyond the ends of the trenches with a connection between the two from about the top of the tile. This device will tend to relieve occasional congestion. In especially difficult subsoil problems it is sometimes possible to relieve congestion from below by installing a drain tile 2 or 3 feet below the bottom of the subsoil system intermediate between the trench filter lines.

In the hardpan areas, such as occur up and down the San Joaquin and Sacramento valleys, there prevails a thin soil layer beneath which is a hardpan of varying thickness. Beneath the hardpan it is common to find additional loam or sand, often in the presence of the water table. In such cases it is well to blast through or bore through the hardpan layer here and there between the lines of the trench filler, to give the seepage a chance to filter beneath the hardpan. If the cesspools referred to are also used, special care must be taken to locate them remote from water wells.

Conditions Under Which a Subsoil System Will Not Work.

A few such difficult or impossible situations are:

(a) Soil of clay or adobe so impervious it will not soak up water. Observation of its behavior under rain conditions is useful. If rain water puddles will not soak away in a hour or so, the problem before us is bound to be expensive or impossible.

(b) Thin soil only 2 or 3 feet thick overlying an impervious layer, for example, hardpan too thick to be pierced, a conglomerate layer or a nonfissured bedrock.

(c) A location close to wells and at the same time a ground water plane within, say, 5 feet of the surface, in winter.

HEALTH BILLS BEFORE LEGISLATURE

(Continued from last issue.)

Sterilization

A. B. 918. BIGGAR and ZION.

New act, re sterilization of defectives not in State institutions.

Authorizes any married resident of the State to apply to any city, State or county hospital supported by public funds for a sterilization operation in case he believes that his offspring would be liable to become public charges either because of physical or mental diseases or defects, or because of the inability of their parents to rear them. The act provides for determination in the first instance by the superintendent of the hospital, and on appeal by the State Board of Eugenics, of the validity of the reasons set forth for sterilization.

Vital Statistics

S. B. 417. EVANS.

Adds Par. 4½ to Act 9008, re vital statistics.

In county having freeholder charter, the county health officer would perform the duties prescribed in the act for county recorder; and, in such county, the health officer would perform the duties of local registrar in certain cities and in unincorporated territory.

A. B. 1103. COBB (by request).

Amends Pars. 9, 14, Act 1998, re registration of deaths.

Adds to Par. 9 provision that local registrar make and transmit monthly to County Clerk or Registrar of Voters, copies of certificates registered with him during month, or if no deaths have occurred in any month a report to that effect.

LIST OF DISEASES REPORTABLE BY LAW

ANTHRAX
BERI-BERI
BOTULISM
CHICKENPOX
CHOLERA, ASIATIC
COCCIDIOIDAL GRANULOMA
DENGUE
DIPHTHERIA
DYSENTERY (Amoebic)
DYSENTERY (Bacillary)
ENCEPHALITIS (Epidemic)
ERYSIPELAS
FLUKES
FOOD POISONING
GERMAN MEASLES
GLANDERS
GONOCOCCUS INFECTION*
HOOKWORM
INFLUENZA
JAUNDICE (Infectious)
LEPROSY
MALARIA
MEASLES
MENINGITIS (Meningococcic)
MENINGITIS (Cerebrospinal)
MUMPS
OPHTHALMIA NEONATORUM
PARATYPHOID FEVER
PELLAGRA
PLAGUE
PNEUMONIA (Lobar)
POLIOMYELITIS
RABIES (Animal)
RABIES (Human)
ROCKY MOUNTAIN SPOTTED (or Tick) FEVER
SCARLET FEVER
SMALLPOX
SYPHILIS*
TETANUS
TRACHOMA
TRICHINOSIS
TUBERCULOSIS
TULAREMIA
TYPHOID FEVER
TYPHUS FEVER
UNDULANT (Malta) FEVER
WHOOPING COUGH
YELLOW FEVER

*Reported by office number. Name and address not required.

QUARANTINABLE DISEASES

CEREBROSPINAL MENINGITIS (Epidemic)
CHOLERA, ASIATIC
DIPHTHERIA
ENCEPHALITIS (Epidemic)
LEPROSY
PLAGUE
POLIOMYELITIS
SCARLET FEVER
SMALLPOX
TYPHOID FEVER
TYPHUS FEVER
YELLOW FEVER

MORBIDITY*

Diphtheria.

70 cases of diphtheria have been reported, as follows: Oakland 1, Imperial County 7, Holtville 2, Los Angeles County 5, Glendale 1, Inglewood 1, Long Beach 1, Los Angeles 21, Monrovia 1, Pasadena 2, South Pasadena 1, Maywood 3, Gardena 1, King City 1, Monterey 1, Orange County 1, La Habra 1, Placentia 1, Sacramento County 1, Sacramento 4, San Bernardino Caunty 1, Colton 2, Chula Vista 1, San Francisco 2, San Joaquin County 1, Redwood City 1, Santa Clara County 1, Watsonville 2, Modesto 1, Tehama County 1.

Influenza.

602 cases of influenza have been reported, as follows: Alameda County 2, Alameda 10, Berkeley 3, Oakland 10, Pleasanton 1, Contra Costa County 7, Richmond 1, Fresno County 2, Eureka 4, El Centro 4, Kern County 1, Los Angeles County 27, Compton 1, El Monte 4, Glendale 6, Huntington Park 1, Long Beach 3, Los Angeles 131, Monrovia 2, Pasadena 7, San Fernando 2, San Gabriel 1, Torrance 1, Hawthorne 1, South Gate 1, Monterey Park 1, Tujunga 2, Grass Valley 3, Orange County 2, Santa Ana 5, Sacramento County 6, Sacramento 36, San Bernardino County 3, San Diego 1, San Francisco 283, San Joaquin County 1, Stockton 4, San Luis Obispo County 1, Santa Clara County 1, Solano County 3, Sonoma County 3, Stanislaus County 9, Oakdale 1, Turlock 1, Sonora 3.

Measles.

1205 cases of measles have been reported, as follows: Alameda 1, Berkeley 63, Oakland 120, Pleasanton 12, Contra Costa County 26, Pittsburg 14, Richmond 1, Fresno County 34, Fresno 25, Sanger 4, Selma 5, Eureka 1, Brawley 1, El Centro 15, Kern County 37, Bakersfield 9, Kings County 12, Hanford 8, Los Angeles County 50, Alhambra 1, Arcadia 1, Beverly Hills 3, Burbank 10, Claremont 7, El Monte 1, Glandale 8, Glendora 10, Huntington Park 1, Inglewood 10, Long Beach 21,

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* From reports received on March 9th and 10th for week ending March 7th.

Los Angeles 170, Pasadena 3, Ponoma 19, San Marino 1, South Pasadena 1, Whittier 5, Madera County 7, Sausalito 1, Monterey County 7, Orange County 27, Anaheim 1, Huntington Beach 15, Santa Ana 30, Tustin 3, Riverside County 2, Riverside 11, Sacramento County 2, San Bernardino County 12, Colton 1, Ontario 2, San Bernardino 15, Chula Vista 7, San Diego 146, San Francisco 3, San Luis Obispo County 61, Arroyo Grande 1, Paso Robles 11, San Luis Obispo 47, San Mateo 1, Santa Barbara County 1, Santa Maria 4, Gilroy 4, Santa Cruz County 3, Watsonville 12, Tulare County 13, Dinuba 1, Lindsay 4, Porterville 4, Ventura County 26, Oxnard 2, Ventura 8.

Scarlet Fever.

150 cases of scarlet fever have been reported, as follows: Alameda County 2, Alameda 1, Oakland 3, Fresno County 1, Fresno 3, Kern County 1, Los Angeles County 9, Alhambra 2, Arcadia 2, Compton 1, Covina 2, Glendale 3, Inglewood 1, Long Beach 7, Los Angeles 38, Monrovia 5, Pasadena 1, Redondo 1, Lynwood 1, Hawthorne 2, South Gate 3, Gardena 1, Orange County 1, Anaheim 1, Orange 1, Riverside County 4, Riverside 1, Sacramento 4, Ontario 1, San Diego 4, San Francisco 6, San Luis Obispo County 2, San Luis Obispo 4, San Mateo County 1, San Bruno 1, Santa Barbara County 3, Lompoc 1, Santa Barbara 17, Santa Clara County 2, Palo Alto 1, San Jose 1, Stanislaus County 1, Red Bluff 1, Tulare County 1, Dinuba 1.

Smallpox.

71 cases of smallpox have been reported, as follows: Pleasanton 1, Fresno County 7, Fresno 1, Imperial County 5, Delano 1, Los Angeles County 3, Los Angeles 1, Orange County 1, Orange 1, Riverside County 1, Riverside 1, San Bernardino County 1, San Francisco 1, San Joaquin County 7, Stanislaus County 1, Modesto 8, Tulare County 12, Porterville 13, Visalia 1, Sonora 3, California 1.**

Typhoid Fever.

6 cases of typhoid fever have been reported, as follows: Fresno County 1, Torrance 1, Monterey 1, Sacramento County 1, San Francisco 1, California 1.**

Whooping Cough.

266 cases of whooping cough have been reported, as follows: Alameda 2, Berkeley 13, Oakland 15, Fresno 4, Kern County 1, Los Angeles County 21, Huntington Park 2, Long Beach 4, Los Angeles 16, Monrovia 1, Pasadena 4, Redondo 1, San Fernando 2, San Gabriel 4, San Marino 2, Santa Monica 8, Maywood 2, Seal Beach 1, Riverside County 3, Riverside 9, Sacramento County 1, Sacramento 25, Chula Vista 1, San Diego 1, San Francisco 40, San Joaquin County 20, Lodi 6, Stockton 10, Tracy 9, San Mateo County 5, Menlo Park 1, Santa Barbara County 10, Lompoc 2, Santa Clara County 6, Palo Alto 3, Sonoma County 3, Stanislaus County 8.

Meningitis (Epidemic).

6 cases of epidemic meningitis have been reported, as follows: Oakland 1, Jackson 1, Los Angeles 2, Sacramento 1, San Joaquin County 1.

Leprosy.

Stockton reported one case of leprosy.

Poliomyelitis.

12 cases of poliomyelitis have been reported, as follows: Imperial County 1, Los Angeles County 1, Long Beach 1, Los Angeles 1, Mill Valley 1, Sausalito 3, Roseville 1, San Diego 1, San Francisco 1, Marysville 1.

Food Poisoning.

7 cases of food poisoning have been reported, as follows: San Francisco 3, South San Francisco 4.

Undulant Fever.

Long Beach reported one case of undulant fever.

Encephalitis (Epidemic).

4 cases of epidemic encephalitis have been reported, as follows: Los Angeles County 2, Los Angeles 2.

Actinomycosis.

Los Angeles reported one case of actinomycosis.

** Cases charged to "California" represent patients ill before entering the State or those who contracted their illness traveling about the State throughout the incubation period of the disease. These cases are not chargeable to any one locality.

COMMUNICABLE DISEASE REPORTS

Disease	1931				1930			
	Week ending			Reports for week ending Mar. 7 received by Mar. 10	Week ending			Reports for week ending Mar. 8 received by Mar. 11
	Feb. 14	Feb. 21	Feb. 28		Feb. 15	Feb. 22	Mar. 1	
Actinomycosis	0	0	0	1	0	0	0	0
Botulism	0	0	0	0	1	0	0	1
Chickenpox	686	747	599	623	556	607	687	575
Coccidioidal Granuloma	0	0	0	0	0	0	1	2
Diphtheria	56	55	59	70	74	71	70	52
Dysentery (Amoebic)	1	2	2	2	2	0	0	0
Dysentery (Bacillary)	2	5	3	2	1	3	3	0
Encephalitis (Epidemic)	1	0	2	4	0	1	2	1
Erysipelas	25	29	32	13	22	15	24	14
Food Poisoning	4	3	6	7	100	0	171	13
German Measles	18	22	36	18	24	65	45	35
Gonococcus Infection	191	166	145	140	90	96	120	116
Hookworm	0	0	0	0	0	0	0	1
Influenza	308	513	561	602	76	35	51	52
Jaundice (Epidemic)	0	0	1	0	0	0	0	0
Leprosy	1	0	1	1	1	0	0	0
Malaria	0	1	0	1	0	1	0	1
Measles	992	1,049	989	1,205	1,029	1,180	1,646	1,514
Meningitis (Epidemic)	9	5	6	6	8	10	13	5
Mumps	286	315	336	364	644	821	823	697
Paratyphoid Fever	0	1	0	0	1	0	0	0
Pellagra	1	0	0	0	0	1	1	0
Pneumonia (Lobar)	68	46	67	110	108	75	216	47
Poliomyelitis	6	6	5	12	1	0	2	3
Rabies (Animal)	22	14	21	22	14	13	13	17
Scarlet Fever	156	124	134	150	292	277	291	207
Smallpox	66	70	48	71	122	107	111	53
Syphilis	248	245	190	185	135	145	175	180
Tetanus	0	1	1	0	1	2	3	0
Trachoma	2	4	0	0	2	1	2	2
Trichinosis	1	2	1	0	3	5	5	0
Tuberculosis	235	197	221	220	254	218	145	247
Typhoid Fever	15	9	5	6	12	7	7	7
Undulant Fever	1	0	3	1	2	3	1	0
Whooping Cough	170	204	195	266	167	115	185	157
Totals	3,571	3,835	3,669	4,102	3,742	3,874	4,813	3,999

Smallpox shows an increase over the preceding week.

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Measles climbed to 1200 cases reported last week.

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Chickenpox, mumps and scarlet fever also showed increases in prevalence.

* * *

Animal rabies is high.

* * *

Twelve cases of epidemic poliomyelitis were reported last week.

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